

Measure of Effectiveness: Quantitative measure used to compare effectiveness of alternatives in achieving an objective.

- The MOE must be closely related to the objective of the task.
- An MOE must be measurable.
- An MOE must measure to what degree the (real) objective is achieved

An MOE is often a ratio of expected output to input or desired output.

An MOE must have a clear direction – e.g., bigger or smaller is an improvement

For our case, if the objective is to reduce driving commute time on Braddock road, then a good MOE might be the expected time it takes a vehicle to go from the start to the finish of the length of Braddock that we are studying. This can be compared (e.g., difference or ratio) to the time it would be expected to take without the alternative under consideration. The ability to compare it to this baseline is useful when we ultimately consider cost (in other words, is the improvement worth the cost, which is a cost-effectiveness MOE).

Measures of Performance (MOP) provide indications as to why MOEs are what they are. These can be the expected wait times at different intersections, or queuing at turn points. In of themselves they do not have a lot of meaning, but when examined as a cause of an MOE's value they can suggest where improvements can be made that result in an improved MOE value.

Recommendation:

- Decide on high level objectives of the set of potential improvements to Braddock Road. For example:
 - Shorter commute times at rush hour
 - Better quality of life for neighboring communities
 - Increased resident and commuter safety
- Decide on one or two MOEs that (1) are measurable with the model under consideration, (2) would clearly indicate if the objectives are being achieved.
- Develop a set of MOPs for each MOE (not necessarily mutually exclusive) that provide insights that explain the MOE values. It may be necessary to establish some unacceptable “floors” for MOPS.
- Model the baseline (no improvements), then each alternative and compare MOEs and examine MOPS
- Determine whether excursions (new alternative) are needed
- Conduct sensitivity analysis for key parameters/assumptions